Trends in Life Expectancy at Birth among Males in Peninsular Malaysia

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1.0 Introduction

This paper examines mortality trends among the three main ethnic groups in Peninsular Malaysia, namely; the Malays, Chinese and Indians. Mortality trends are based on the Crude Death Rate (CDR), and Infant Mortality Rate (IMR). Both CDR and IMR have an inverse relationship with the trend in Life Expectancy at Birth (LEB). The trend of all three mortality indexes, the crude death rate, infant mortality rate and life expectancy at birth among men are studied starting from 1940's until the present time.

2.0 Crude Death Rate (CDR)

CDR is a general mortality index measuring number of deaths for every 1000 people of a country at any point in time. It is a general rate to give a general picture of a mortality level of a country at any point of time. This rate will have a general reltionship with LEB, that is, the lower the CDR, the higher the LEB will be.

Table 1 below shows the trend in CDR among three major ethnic groups in Peninsular Malaysia since 1947 untill 2006. The CDR in Peninsular Malaysia has declined drastically since the early twentieth century. In 1911, CDR in Peninsular Malaysia was 39.2 and it continued to drop to 19.1 in 1931. From 1931 through 1947,

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CDR has stabilised at a level of 19/000, and continued to decline rapidly thereon (Malaysia, 1991: Summary Table 1.2).In the year 1957, the CDR was 12.4 and further declined to 4.8 in 1987 (Malaysia, 1988: 20, Table 3.2) and to 4.5 in 2007 (Malaysia, 2008:3, Table 1). From 1987 until 2007, CDR had stabilised at around 5/000. and It looks like the mortality transition for the population of Peninsular Malaysia has been completed.

Insert figure (1) about here

Figure 1 above shows the graph of the trend in CDR for all ethnics from the year 1947 to 2006. It shows that the rapid declined in CDR for all ethnics were for the periods 1947 up to 1967. As for the period from the year 1967 to 1987, CDR showed a slower declining trend. For the period 1987 up to 2006, CDR was at a very low level for all ethnics and further decline seems to be difficult, as the CDR at about 5 per thousand is considered very low indeed. It looks like the mortality transition for the population of Peninsular Malaysia has been completed.

3.0 Infant Mortality Rate (IMR)

IMR is a mortality index measuring infant deaths, that is, the death of infants below the age of one year for every 1000 live births of a population at any point in time. IMR will have a strong inverse relationship with LEB, since IMR is the most important part of mortality which affects the overall mortality level as well as LEB. The lower the IMR, the higher the LEB will be.

Table 2 below shows the trend in IMR for Peninsular Malaysia according to the three main ethnic groups, Malays, Chinese and Indians. In the year 1947, the IMR for all ethnics was very high, recording 102.2 deaths of infants for every 1000 live births. IMR for the Malays was the highest, followed by Indians and Chinese

It declined to 75.5 in 1957 and further declined to 30 in 1977. The trend for the ethnic still remains the same, with Malays recording the highest IMR, followed by Indians. The Chinese was the lowest.

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The IMR for the year 1987 started to show a moderately low level, recording 14.4 infant deaths for every 1000 live births for all ethnics. IMR for the Malays was still the highest, followed by Indians. The Chinese was the lowest at 9.2. It further declined to a lower level of 6.6 in the year 2006, with Malays recording 7.9, Indians at 6.1 and Chinese at 4.6. The rates for 2006 are considered to be very low although further decline in IMR for all ethnics are still possible.

Figure 2 below shows the trend in IMR by ethnicity for Peninsular Malaysia from 1947 up to 2006. For the period of 1947 up to 1967, the IMR shows a very rapid declining trend. It was continued to decline rapidly for the period from 1967 up to 1987. A very slow decline was shown for the period 1987 onwards. The IMR for all ethnics are considered very low in 2006, although a further decline is possible for IMR for all ethnics.

Insert figure (2) about here

4.0 Life Expectancy at Birth (LEB)

LEB is the average life of a person from the time of birth and expected to live througout the years based on a life table for a particular population. It is computed based on total number of persons' years lived divided by total number people in a respected age/age group, or as in the life table, it is, T_x / $l_{x..}$ LEB is $T_0/L_{0,}$ that is a summary index obtained from a life table, the basic instrument of measurement for the demographer (for a complete description of the life table and its concepts, see any standard text of demographic techniques, for example, Barclay, 1958; Pollard et.al., 1981; Shryock and Siegel, 1975).

Because LEB is based upon age specific rates, it is independent of the age structure of a population and therefore provides a more reliable basis than the CDR for international comparisons of the level of mortality The life table also allows us to calculate the average number of years that a persons can expect to live from their current age, that is based on value of T_x/L_x or ex in a life table (Lucas, et al., 1980: 49). The LEB is heavily influenced by infant and early childhood mortality, because these deaths mean the loss of a whole lifetime with a potential length of sixty to seventy years. For example, in a developed country, a woman who could expect to live to age 74 from birth only increases that expectation by two years if she survives to age 20. On the other hand, a woman from a developing country who could expect to live to age 47.5 from birth would increase this expectation by 15 years to 62.5 years if she survived to age 20. Thus countries with an infant mortality rate, say 100 per 1,000 live births can be expected to have an expectation of life at birth below 55 years (Lucas, et. al., 1980 : 50).

4.1 Life Expectancy at Birth Among the Malay Population in Peninsular Malaysia.

Table 3 below shows the LEB for males and females for the Malay population in Peninsulr Malaysia since 1957 till the year 2000. The LEB for males in 1957 was 50.23 years. This is considered very low. It was lower than their female counterparts which is 53.39 years. In 1970, LEB for both sexes, males and females, incrreased to 63.75 and 65.52 years respectively. It increased to 67.88 and 70.98 in the year 1980, and further increased to 68.80 and 73.00 years respectively in the year 1990. In the year 2000, LEB for males was 70.4 and for females 75.00 years.

Insert table (3) about here

Graphically, LEB for the male and female population of Peninsulat Malaysia from 1957 to 2000 is shown in the Figure 3 below. The graph shows that LEB for males and females have increased sharply from 1957 to the year 1970, recording the increase for males about 27 per cent. The females' LEB had increased by 22.7 per cent It further increased to 67.88 and 70.98 years in the year 1980 for males and females respectively.

The males' LEB had increased to 68.8 years in 1990 and to 70.04 years in the year 2000, while females' LEB had increased to 73.0 and 75.06 years for the same period. It should be noted here that although both LEB for males and females had increased tremendously since 1957 until 2006, the males' LEB recorded 40.2 percent increase and females' LEB recorded 40.6 percent, the LEB for females was always higher than their male counterparts. The LEB for the year 2000 showed that females had higher LEB (75.06 years) by about 5 years compared to their male counterparts (70.04 years).

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4.2 Life Expectancy at Birth Among the Chinese Population in Peninsular Malaysia.

Table 4 below shows the life expectancy at birth of the ethnic Chinese in Peninsular Malaysia from 1957 to 2000. Since indepndence in 1957, the LEB of the Chinese male population had increased sharply, from 59.52 in 1957 increased to 75.08 in 2000, recorded an increment of 26.14 percent, while the Chinese femala population recorded a 17.0 percent increment for the same period.

For the years 1957, 1970 and 1980, LEB for Chinese females were always higher than their male counterparts by more than 7 years. The gap got smaller for the year 1990, recording 5.7 years difference, while in the year 2000 the gap became even more closer with the difference of 3.01 years.

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Figure 4 below shows the trend in LEB for Chinese males and females from 1957 to 2000. Both LEB showed a steady increase over the period with females recording a higher LEB compared to male LEB, and the gap got closer for the period 1990 and 2000. The sharp increase in LEB for females for the period 1957 to 1970, continued a steady increase until 1990, and there was a slower increase after 1990 until 2000, while the male LEB showed a steady and continous increase throughout the years from 1957 up to 2000.

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4.3 Life Expectancy at Birth Among the Indian Population, Peninsular Malaysia, 1957-2000.

Table 5 below shows life expectancy at birth for Indians in Peninsualr Malaysia from 1957 to 2000. For the Indian population, LEB in 1957, shows a different pattern compared to Malays and Chinese. The LEB for males was higher than that of the females. In 1970 and onwards, the trend was quite similar to the Malays and Chinese, as both sexes experienced increasing trend and for females, the LEB were always higher compared to that of the males.

Insert table (5) about here

Figure 5 below shows the LEB for Indians in Peninsular Malaysia from 1957 until 2000. At the beginning, in the year 1957, the LEB for Indain males was higher than females, both started to increase steadily until the year 2000. By the year 1970 and onwards LEB for females bypassed the males. The gap in 1990 was the highest with females LEB 8 years longer than the males.

By the year 2000, the gap was getting closer with the difference of 6.12 years. LEB in 2000 showed that LEB for females was 75.4 years and males was 69.3 years. From 1957 to 2000, LEB for males recorded 20.54 percent increment and females recorded 38.1 percent.

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4.4 Life Expectancy at Birth Among Men in Peninsular Malaysia :

A Comparison.

Table 6 below shows the trends in LEB for all ethnics; Malays, Chinese and Indians in Peninsular Malaysia from 1957 until 2000. In 1957, LEB for males for the Chinese was the highest followed by Indians and Malays was the lowest. Male LEB had increased steadily from 1957 untill 2000. Malay males recorded 39.4 percent increment during the period, Chinese males recorded 26.1 percent and Indian males recorded 20.5 percent. At the beginning in 1957, male LEB was the highest for the Chinese with 59.52 years, followed by Indians 57.49 years and Malays 50.23 years.The difference between Chinese and Indians was 2.03 years, between Indians and Malays 7.25 years, and the difference between Chinese and the Malays was 9.29 years.

In 1980, LEB for males of all ethnics were increased substantially. The Malay men CEB increased to 67.88 years, Chinese 68.10 years and Indians 63.23 years. The gap between the ethnics was getting closer. The differences for the Chinese and Indians was 4.87 years, Chinese and the Malays was 0.22 years. The LEB for the Malay men was higher compared to the Indians by 4.65 years.

In the year 2000, LEB for Chinese continued to increase from 68.1 in 1980 to 75.08 in 2000. The Malay men LEB increased from 67.88 to 70.04 years and Indian LEB increased from 63.23 to 69.30 years for the same period. The differences amongst LEB for ethnics were getting slighly higher, except between Malays and Indians, compared to the differences in 1980. In 2000, the difference between Chinese and Indians was 5.78 years, Chinese and the Malays was 5.04 years. LEB for the Malays was slightly higher than the Indians, with the difference was 0.74 years. It is worth noted here that the LEB for Chinese men were abour 5 years older compared to LEB for Malay and Indian men in 2000.

If we were to compare LEB for men and women for all ethnics, except for the Indians, in 1957 where LEB for men was higher than the women, the rest of the years, for all ethnics, LEB for women were always higher than their men counterpats. In 1980, LEB for Malay women was higher by 3.1 years compared to the men, for Chinese it was 7.44 years and for Indians it was 3.77 years. While in the year 2000, the difference for the Malays was 5.02 years, Chinese was 3.01 years and Indians was 6.12 years. In 2000, The LEB for women for all athnics were higher compared to their men conterparts.

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5.0 Implications of the Study for Policy Formulation and Further Research.

5.1 Implication for Policy Formulatiom

There are at least three implications of this study for policy formulation. They are implications for improvement of socio-economic and health care in rural areas, implications for pension age policy and implications for health expectancy policy.

5.1a Implication for Improvement of Socio-economic and health

Policies for Rural Areas

First, policy regarding improvement in health care facilities in rural areas, particularly in Sabah and Sarawak in East Malaysia. Although the CBR and IMR for Peninsular Malaysia are quite low in recent years, there are still differences in the rates according to strata rural and urban population. Most of the rural areas, particularly in Sabah and Sarawak have higher IMR compared to the urban population. Extention of socio-economic development, improvement infrustructure, education and public health programmes including rural environmental sanitation and applied nutrition and control and eradication of comunicable diseaes such as malaria, tuberculosis, leprosy etc. are among the important measures that need to be taken to improve the quality of health among the rural people. Then their IMR could posibly be reduced to a very low level in the future.

5.1b Implication for Pension Age Policy

Second implication is for pensionable age policy. At the time where the LEB was quite low, for example in 1957, LEB for Malay males and females were 50.23 and 53.39 years respectively, the pension age at that time was 55 years. In other words, the Malays were expected to die first before they get their pension. In the year 2000, the Malay LEB was 70.04 years for males and 75.08 years for females, recording 39.4 percent and 40.6 percent increments respectively, the pension age for the government servant in Malaysia was revised to 56 years in 2001. The pension age was increased again to 58 years in March 2008 (Sarban Singh, The Star, Monday 5 July, 2010).

The increment in pension age is considered to be very small compared to the increment in LEB of the people of all ethnic groups. Looking at our neigbouring countries such as Singapore, Thailand and Indonesia, the retirement age for civil servants in Thailand and Indonesia are 60, while it is 62 in Sinagpore. In 2000, the average LEB for Thailand and Indonesia were 70.2 years and 66.2 years respectively, below the average of LEB for Malaysia which is 72.5 years (Rokiah and Aisha, 2008 : 38 Table 3). In other words, the pension age policy in Malaysia is not a dynamic policy.It should have been made, at least for now, optional retiremnet age at the age of 60 years and mandatory pension, at the age of 65 years old, and its should have been revised gradually, corresponding to the increases in LEB in the future.

5.1c Implication for Heath Expectancy

The third implication is regarding the health of aged population. As far as LEB is concerned, Japanese men and women lead the world. In 2007, LEB for the Japanese men and women were 79.19 and 85.99 years respectively (Yong and Saito, 2009 : 468) . It is possible to improve the life syles of the people coupled with improvement in medical heath care for the aged, so that their LEB could further be improved in the future. The improvemnet in LEB must be accompanied by improvement in health condition of the people, otherwise, the improvemnet would be meaningless.

5.2 Implication for Further Research.

In relation to implication 5.1c above, a comprehensive research should been done regarding the heath expectancy of the people. In almost all parts of the world, improvements in socio-economic conditions, better living standard, heatlh and sanitation conditions, educational attainments and advancement in medical services and technologies are enabling people to live longer. As people live longer, several key health-related quality of life questions regarding status of health, the proportion of life span of the people live in good heatlh and the trend or the changes over time arise. No point for the people to have longer life but worse health. To answer all the above questions, the extention of life ecpactancy which is called health expectancy need to be studied thoroughly.

The health expectancy is a summary measure of population health that take into account both current mortality and morbidity levels of a population, and partition years of life at a particular age into healthy and unheathy years (Yong and Saito, 2009 : 468).

This type of study has been carried out in other parts of the world, for example, in Japan (Yong and Saito, 2009), Denmark (Bronnum-Hansen et. al., 2004), Sao Paulo, Brazil (Camargos, et.al., 2007), United States of America (Crimmins, et.al., 1989), Britain (Kelly et.al., 2000), Austarlia (Mathers, 1991) and a comparison of six Asian settings by (Ofstedal, et. al., 2004). The study of health expectancy is deemed necessary for the population of Malaysia in the near future. This study will complete the study of life expectancy of the people in Malaysia.

6.0 Conclusion

Since 1947, the trends in crude death rate (CDR) and infant mortality rate (IMR) have shown a sunstantial declined, from the rates could be considered very high to a very low rate in the yaer 2000. Currently, CDR for all ethnic groups in Peninsular Malaysia seems to be stable at about 5 per thousand population. It is an indication that the mortality transition for Peninsualr Malaysia is already completed.

Infant mortality rate also showed a very vast declining trend since 1947. From the rates which could be considered very high in 1940's and 1950's, IMR declined very sharply until the year 1967, and continued to decline sharply until the year 1987. From 1987 onwards, the trend of declining getting slower as the rates for all ethnics are considered to be very low. But a small decline in IMR of all ethnic groups are still possible, by reducing, particularly IMR for rural and remote areas in Sabah and Sarawak.

Since CDR, and in particular IMR, have an inverse relationship with life expectancy at birth (LEB), a hugh declined in CDR and IMR over the last six decades, caused the LEB to rise very sharply over the period. From LEB which could be considered very low in the 1940's and 1950's, it increased to about 70 years for the IMalay and Indian males and to 75 years for Chinese males in 2000, while females LEB have improved to about 75 years for Malays and Indians and 78 years for the Chinese females in 2000. Further increase in LEB for both males and females of all ethnics are still posible, since the Japanese males and females LEB in 2007, which are the highest in the world, were at 79.19 and 85.99 respectively. The improvement in soco-economic conditions coupled with improvement in health and medical services especially for the aged, would possibly increase the LEB for population of Malaysia further.

There are at least three implications of this study for policy formulation. Implication for improvement of socio-economic and health care in rural areas, implication for pension age policy and implication for health expectancy for the future. There is an implication for further research in which future research in this area should focussed on the study of health expectancy of the people. This is important to allow people to live longer and at the same time to have good health.

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Table 1

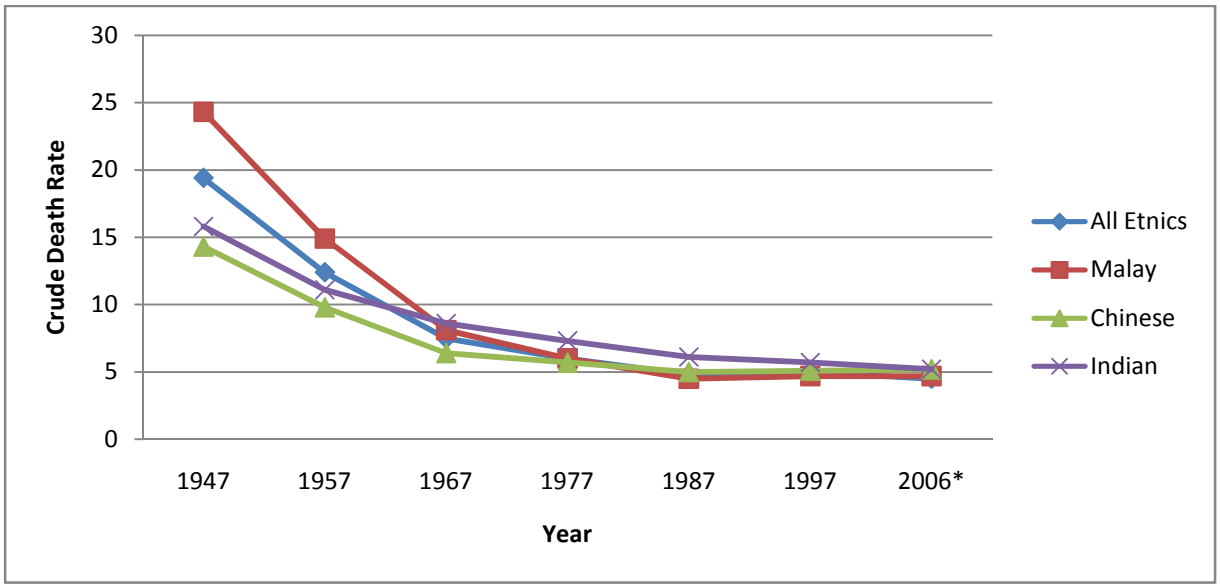
Crude Death Rates (CDR), Peninsular Malaysia, 1947 – 2006

Years	Crude Death Rates (CDR)			
	All Ethnics	Malay	Chinese	Indian
1947	19.4	24.3	14.3	15.8
1957	12.4	14.9	9.8	11.1
1967	7.5	8.1	6.4	8.6
1977	6.0	6.0	5.7	7.3
1987	4.8	4.5	5.0	6.1
1997	5.0	4.7	5.1	5.7
2006*	4.5	4.7	5.2	5.2

* Estimates for Malaysia made by Department of Statistics, Malaysia. Malaysia, 2006, Perangkaan Penting Malaysia Edisi Khas 2001-2006 : 7, Jadual 1.4.

Source : General Reports of the Population Census, 1947,1957; and Vital Statistics for Peninsular Malaysia 1968, 1978, 1988 and 1998.

Figure 1 : Graph Crude Death Rates by Ethnicity, Peninsular Malaysia, 1947-2006



Source : Same as Table 1, p. 2.

Table 2

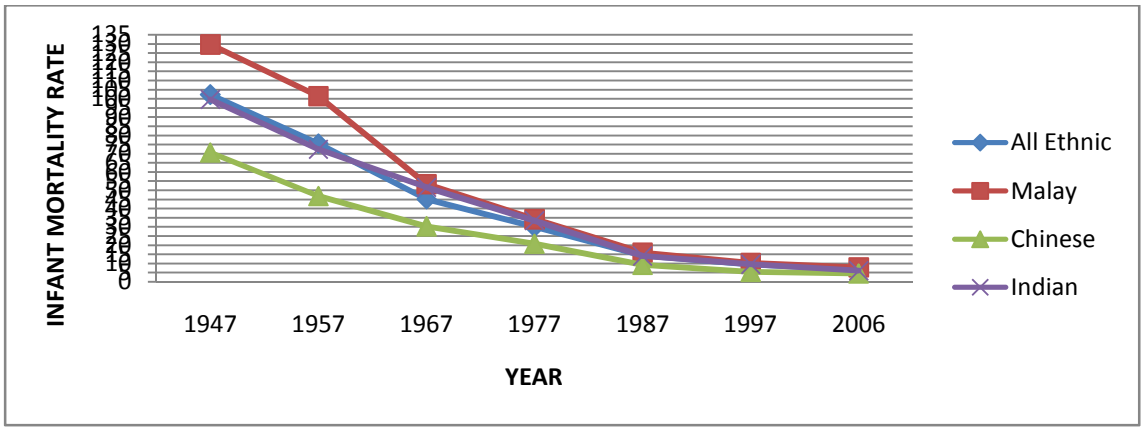
Infant Mortality Rate, By Ethnic, Peninsular Malaysia, 1947 – 2006

ETHNIC/YEAR	1947	1957	1967	1977	1987	1997	2006*
All Ethnics	102.2	75.5	45.1	30.0	14.4	9.5	6.6
Malays	129.6	101.4	53.4	34.2	16.0	10.4	7.9
Chinese	70.6	46.9	30.2	20.8	9.2	5.5	4.6
Indian	99.7	72.4	51.6	33.4	14.1	9.6	6.1

* Estimates for Population of Malaysia. Malaysia, 2006. Perangkaan Penting Malaysia Edisi Khas, 2001-2006. Kuala Lumpur : Jabatan Perangkaan Malaysia.

Source : General Reports of the Population Census, 1947, 1957 and Vital Statistics for Peninsular Malaysia and Malaysia 1968, 1978, 1988 and 1998.

Figure 2 : Infant Mortality Rate by Ethnicity, Peninsular Malaysia, 1947-2006.



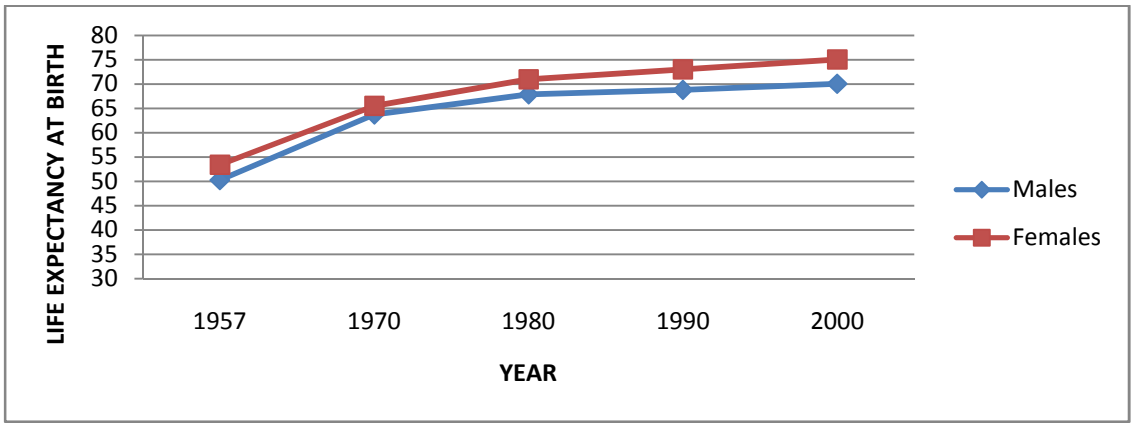
Source : Same as Table 2, p.5.

Table 3 : Life Expectancy at Birth, Malay Population, 1957-2000

Year	Males	Females
1957	50.23	53.39
1970	63.75	65.52
1980	67.88	70.98
1990	68.80	73.00
2000	70.04	75.06

Source : General Report of the Population Census 1957 and 2000, Vital Statistics, Peninsularr Malaysia 1971, 1981, 1992.

Figure 3 : Life Expectancy at Birth for Malay Males and Females, Peninsular Malaysia, 1957 – 2000.



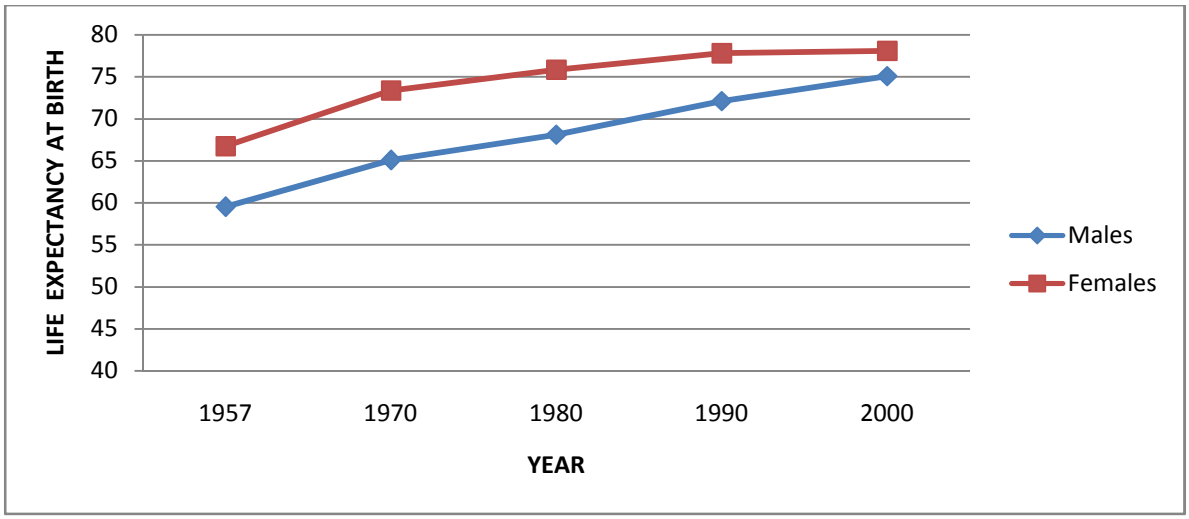
Source : Same as Table 3, p. 8.

Table 4 : Life Expectancy at Birth, Chinese, Peninsular Malaysia, 1957-2000.

Year	**Males**	**Females**
1957	**59.52**	**66.73**
1970	**65.08**	**73.36**
1980	**68.10**	**75.84**
1990	**72.10**	**77.80**
2000	**75.08**	**78.09**

Source : General Report of the Population Census 1957 and 2000, Vital Statistics,Peninsular Malaysia 1971, 1981, 1992.

Figure 4 : Life Expectancy at Birth for Chinese in Peninsular Malaysia, 1957-2000.



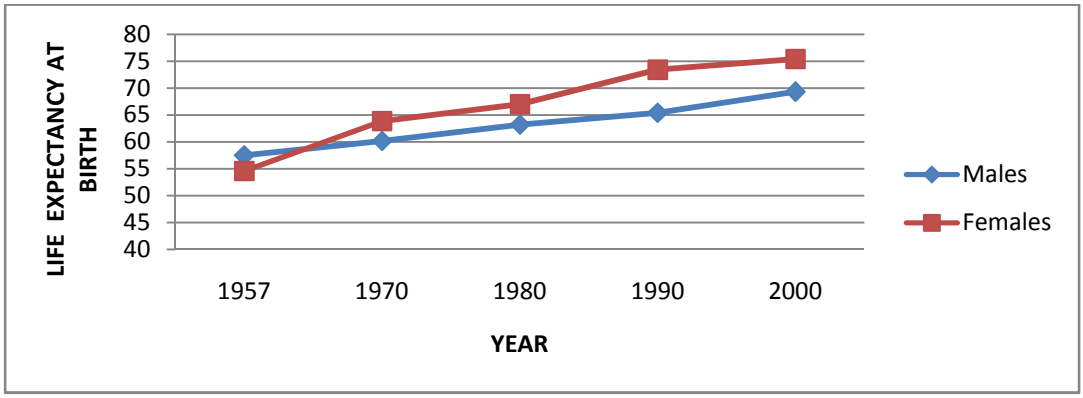
Source : Same as Table 4, p. 10.

Table 5 : Life Expectancy at Birth, Indians, Peninsular Malaysia, 1957-2000.

Year	Males	Females
1957	57.49	54.60
1970	60.16	63.87
1980	63.23	67.00
1990	65.4	73.4
2000	69.30	75.42

Source : General Report of the Population Census 1957 and 2000, Vital Statistics, Peninsular Malaysia, 1971, 1981, 1992.

Figure 5 : Life Expectancy at Birth for Indians, Peninsular Malaysia, 1957-2000.



Source : Same as Table 5.

Table 6 : Life Expectancy at Birth, By Ethnicity, Peninsular Malaysia 1957 – 2000.

Year/ Etnic	Malay		Chinese		Indian	
	Males	Females	Males	Females	Males	Females
1957	50.23	53.39	59.52	66.73	57.49	54.60
1970	63.75	65.52	65.08	73.36	60.16	63.87
1980	67.88	70.98	68.10	75.84	63.23	67.00
1990	68.80	73.00	72.10	77.80	65.4	73.4
2000	70.04	75.06	75.08	78.09	69.30	75.42

Source : General Reports of the Population Census 1957 and 2000, Vital Statistics, Peninsular Malaysia, 1971, 1981, 1992.